SOIL conservation

U.S. Department of Agriculture/Soil Conservation Service/August 1971 37/1

SOIL
conservation

August 1971, Vol. 37, No. 1

This month SOIL CONSERVATION takes a look at young people and their interest in conservation. The lead article is an account of how an outdoor classroom in the state of Washington encompasses all levels of education. The centerspread features Davenport's nature center for handicapped children, which is engendering in the children an appreciation of beauty and of nature. A photo article by a young lady from Arizona shows that young people, given a starting point for thought and action, are heading in the right direction. Other articles: a mobile lab brings environmental education to Milwaukee's ghetto schoolchildren; college students in West Virginia working their way through school and picking up an education in conservation at the same time.

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Working with young America

Prepared in the Division of Information, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C. 20250

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SOIL CONSERVATION is the official magazine of the Soil Conservation Service, published monthly by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. Use of funds for printing this publication approved by the Director of the Bureau of the Budget July 17, 1968.
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Subscription: $2.00 per year, $2.50 foreign. Single copy 25 cents. Discount of 25 percent on orders of 100 or more sent to same address. Order direct from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

"Walk-up-and-kick-um"

by Jan Curtis
Information Division, SCS
Washington, D.C.

Walk-up-and-kick-um may not be the exact Indian pronunciation, but it's how the kids pronounce "Wahkiakum," the name of the school district in southwestern Washington where language arts is only one of the subjects studied in the tall timber and along the sparkling creeks of a 100-acre classroom.

Involvement isn't an Indian word, but it explains how this outdoor classroom was developed by the people of Wahkiakum County in less than 2 years and with only $2,-100.

Community involvement began in 1969 when Bob Webb, district conservationist for the Soil Conservation Service in Wahkiakum County, suggested to the school board that 100 acres of school land, then being used only by vocational agriculture students for forestry studies, could be developed into an outdoor classroom for the elementary school and the high school in the small town of Cathlamet. These two schools serve two-thirds of Wahkiakum County.

Webb's idea caught the imagination of school board members; but school district funds were low. Webb believed, however, that the people in the community would be willing to help in planning and developing the outdoor classroom.

He was right. An advisory committee made up of representatives from the state Department of Natural Resources, Crown Zellerbach (the major lumbering industry in the county), the state Department of Game, and the Wahkiakum Soil and Water Conservation District enthusiastically joined with school officials and teachers in preparing a plan for developing the 100-acre classroom.

Then, with backing from citizens, faculty, and the school board, and with a $1,800 federal grant from the Cowlitz-Wahkiakum In-Service Education Center and $300 from the state Soil and Water Conservation Committee, the project was ready to go beyond the planning stage.

Vocational agriculture students cut, sawed, split, hammered, and nailed and brought an Indian longhouse into existence for use during inclement weather. Crown Zellerbach donated the cedar logs, and elementary students, through research, furnished the design for the longhouse.

The Department of Natural Resources set up two outdoor restrooms near the longhouse and donated the sign that marks the entrance to the 100-acre classroom.

The nearby Clark-Skamania Soil and Water Conservation District loaned its trail-building machine to the vocational agriculture students for use in constructing four loop trails. The vo-ag students also helped dig soil-profile study pits, construct a series of ponds for water studies, and prepare a resource inventory map of the site. And they supervised a general cleanup of the area after construction was finished.

The vo-ag students and their teacher, Robert Kerstetter, and the Future Farmers of America chapter are given much of the credit for the development of the classroom. Fred Beck, science teacher at Wahkiakum High School and coordinator of the outdoor classroom activities, claims that their work and cooperation brought the outdoor education program into full swing years sooner than expected.

Pre-schoolers and first graders use a scaled-down version of the 100-acre classroom—a minitrail next to the school buildings. The trail leads through a strip of trees 150 feet wide, past a soil-profile study pit, and along a creek.

The minitrail is also popular with second graders, who are encouraged to use their imaginations as well as their textbooks in identifying plants. Such names as "hairy fan" for ferns, "stickly bush" for holly, and "Mr. and Mrs. Pointer" for fir cones show up in their creative writing.

Creative writers in one of the third grade classes wrote a poem about "Father Fir," the giant 500-year-old tree that stands in the center of the outdoor classroom. The poem tells how Father Fir's children and grandchildren are growing up around him on land formerly used for pasture. The music teacher set the poem to music.

Fifth graders use the outdoor classroom for environmental studies. They do creative writing and research papers, and they draw outdoor scenes using materials found on the ground as their art supplies.

Sixth, seventh, and eighth graders make use of the outdoor classroom through comprehensive science programs.

High school biology classes use the classroom as an open-air laboratory for water, animal, and plant studies. The students undertake an individual study of biotic communities. Each student ropes off his own area, studies it thoroughly for 5 or 6 days, and concludes his studies with a research paper.

The FAA chapter makes wood products as part of a timber management and money-making effort. These students have taken on the continuous task of clearing salmon berries and other undergrowth from the trail system.

One of the four trails in the outdoor classroom leads through mature timber and along a major stream that forms the classroom's northwest boundary. A second trail leads from the longhouse to a fishpond. A third features "Father Fir," a shallow pond, and an outdoor "living room"—a small secluded clearing that has soft, green, moss-covered "sofas" and "chairs." A fourth trail leads through an area where students have planted 2,500 trees in the past 15 years.

Community involvement in the classroom is still strong. Resource specialists in the area conduct a yearly "conservation day" for students, with sessions on soil conservation, fire fighting, and tree diseases.

The advisory committee, with Mrs. Norma Artiz, a third grade teacher, as chairman, is working with all the teachers and students in planning ways of using the outdoor classroom more fully. Four students now serve on the committee.

For its leadership in the outdoor classroom project, the Board of Directors of Wahkiakum School District 200 was named one of 12 regional first-place winners in the 1971 National School Board Awards. The $500 cash award will be used to further develop the outdoor program.

Wahkiakum is Indian for "tall timber," a good description of the place where Chief Wahkiakum and his Cathlamet people once lived, and where today students are learning what it means to live in harmony with nature. ♦

The objective of the Wahkiakum outdoor classroom in Cathlamet is poetically stated on the sign (opposite page) at the entrance to the 100-acre classroom.
(Above, left) The students cut their own trails in the outdoor classroom, using a "trail maker."
(Above) The trails and study areas are used by both elementary school and high school students.
(Left) These third graders are releasing tadpoles into a stream.

Caution — wide load

by Lynn Betts
Information specialist, SCS
Lincoln, Nebr.

Each morning, minutes before rush-hour traffic begins, a bulky mobile trailer snakes through the streets of Milwaukee to an appointed destination in the ghetto. Its route changes from day to day, but its mission is always the same.

The 10- by 40-foot trailer is a mobile environmental laboratory that brings to inner-city grade-school children outdoor education materials they would not otherwise have access to. It comes equipped with microscopes and other laboratory equipment, as well as an instructor.

Inside the lab, a student can watch microbes die from pollution, note a frog's pulse change as the temperature around it changes, and check his own reaction to overcrowding and noise pollution.

The mobile lab, tagged "wide-load education" by teachers, was Roy Swenson's idea. He is coordinator of community resources for Milwaukee schools. "Ghetto schools just don't have the facilities they need to conduct experiments, so the teachers are happy to get help," Swenson says.

Only schools in lower income, densely populated areas use the lab because it is financed primarily with federal Elementary and Secondary Education Act funds tagged specifically for these schools. The lab is scheduled according to requests made by the schools at the beginning of the year.

"Because we're cramped for space," Swenson explains, "we can't get all the equipment for a complete course into the lab at one time. So we've split the material into several units."

For 6 to 8 weeks each fall, the lab is equipped for experiments with minute plants and animals. Lab equipment is changed, and for the next 6 to 8 weeks students use microscopes to study animal adaptations to environmental changes. In spring the lab is set up to study urban environmental problems.

Fourth graders take the animal adaptation unit, fifth graders the urban environment unit, and sixth graders the microscopic study unit.

The sessions last only 1 hour so that the lab can get around to as many schools as possible. According to Swenson, 120 schools are eligible for the lab, but last year it got around to only 43 schools—10,000 students, 25 at a time, received instruction. Swenson would like to get two more mobile labs.

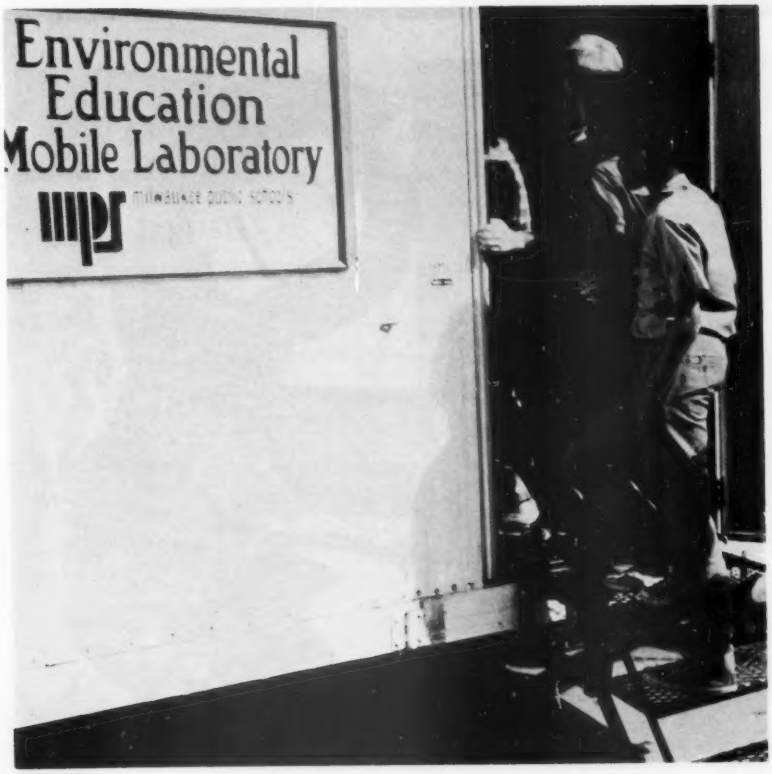
Harold Ryan, the SCS district conservationist in the Milwaukee area, says there are few places that can serve as outdoor classrooms for the inner-city schools. He thinks the mobile lab is a good supplement to classroom work.

Martin Ordinans, the mobile lab instructor, states that the students' favorite course is animal adaptation. He says, "many students are fascinated just to touch stuffed animals they haven't seen before—badgers, pheasants, and weasels.

"Students enjoy the animal unit," he adds, "but perhaps the most meaningful experiment comes in the urban problems session. In it, students are given a diagram of a city block and more models of houses, churches, and parks than will fit the space. The seriousness of poor urban planning and overpopulation really hits these youngsters when they have to decide whether to give up a house or a park."

A mobile laboratory causes some administrative headaches, Swenson claims. "We've dented a couple of car fenders, for example. It didn't take long to learn to avoid heavy traffic."

Swenson admits that he has had tense moments and probably will have more as the bulky trailer moves from school to school. But he maintains that students remember their "wide-load" education, and that makes it all worthwhile. ♦



This 10- by 40-foot mobile laboratory visits at least 43 of Milwaukee's inner-city schools each year. Last year about 10,000 students used the lab in studying about the effects of pollution and other environmental changes.

(Above) Students get taped instructions through headphones in this experiment on urban planning. When they can't fit all the buildings into the allotted space, they realize the effects of poor planning and overpopulation.
(Right) This student is studying the effects of pollution on minute animals.

E is for ecology

How much land is needed for an outdoor conservation education classroom? Children attending Mackin Elementary School in Wilkes-Barre, Pennsylvania, found that 300 square feet will do. They turned an eroding enbankment next to their school building into a nature-study area.

The children began their project by picking up broken glass, paper, and other debris from the area. Next, they asked the Soil Conservation Service for help in making a conservation plan.

As outlined in their plan, the children seeded the area to grass and planted crownvetch and myrtle in the steepest places. They planted their state tree, hemlock, and their state flower, mountain laurel, around the flagpole and privet along the sidewalk. They built birdhouses and feeder stations and placed them in trees.

James Boyle, a sixth-grade teacher at the school and the prime mover of the project, says that from this small piece of land the children's interest in conservation grew. They conducted tests to determine air pollution and analyzed the polluted waters from a nearby stream. They visited strip-mined areas and learned about mine wastes and sedimentation.

The project has the support of the school principal, Fred Crouse, the teachers, and the city school board. The Parent-Teachers Association gave $50 for seed and fertilizer.

Jim Boyle says that the mini outdoor classroom has helped the children become aware of the world around them. Ask him how much land is needed for an outdoor classroom; he will tell you, ". . . as much land as you can stand on."—FRED BUBB, *RC&D project coordinator, SCS, Towanda, Pa.*

The sixth-grade students of Mackin Elementary School in Wilkes-Barre, Pa., are posed on the 300-square-foot embankment that they developed into a nature-study area. Their teacher, James Boyle, is at the top of the embankment, on the left, and the school principal, Fred Crouse, is on the right.

Working their way . . .

by James Thorn
Information specialist, SCS
Morgantown, W. Va.

Scores of college students are getting acquainted with soil and water conservation in a special way in the Mountain State.

Eighty-four of them worked last summer for the Soil Conservation Service and the state's 14 soil conservation districts. That was the most ever in West Virginia.

More than half the students worked under the Cooperative College Work-Study Program established by the Higher Education Act of 1965. They came from a dozen West Virginia colleges and universities. Each worked a 40-hour week for wages ranging from $1.60 to $2.20 an hour.

In the 1970-71 school year, eight students worked part time—up to 15 hours a week—under the program while attending college full time.

SCS representatives regularly consult with college financial aid officers and placement officials on the work-study program. The colleges select the students for the program on the basis of need.

The colleges and universities, with federal help through the Higher Education Act, pay about 80 percent of the salaries. SCS pays the rest. Last summer, however, 13 of West Virginia's soil conservation districts paid the salaries of 20 work-study students.

Each host district enters into an agreement with the colleges that its work-study students are attending. SCS then enters into an agreement with the district.

Some students decide after one or two summers that they want to work permanently for SCS after they graduate and apply for a career-conditional student trainee appointment. Last summer, 20 students were working under such appointments.

Other students work three or four summers and then go on to careers in other fields.

Danny Akers says that the work-study program enabled him to meet his financial needs as an undergraduate and gave him the opportunity to explore the Soil Conservation Service as a future employer.

He counted as assets a fair wage, time off from work during finals, the option of working during college vacation periods, and the opportunity to work both in Morgantown, while attending West Virginia University, and in his hometown, Oak Hill, during the summer.

"Many students have to accept undesirable summer work simply because they need the money and few jobs are available," Danny reports. Under work-study, he was able to relate his college training in animal science to most of his duties.

Jeanette Shahan is another work-study student at West Virginia University. She works at the SCS state office in Morgantown, part time during the school year and full time in summer.

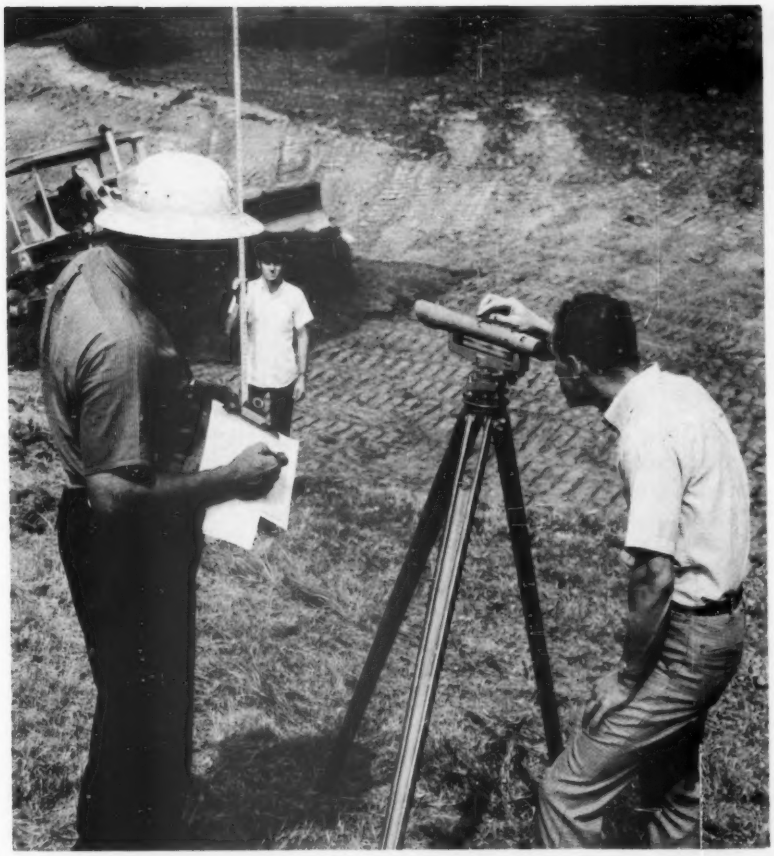
"At first I thought of the program only as a way to finance my education," Jeanette said, "but it has offered me much more than that." She says that what she has learned about conservation "is useful to me at the present time and will be more useful in the future."

E. T. Estlack, assistant state administrative officer for SCS, reports that many of the busiest units ask for students every year.

E. V. Wickline, area conservationist at Philippi, wanted work-study students from the start of the program.

Before the work-study program began, he had used college students as summer helpers when he was work unit conservationist at Lewisburg from 1946 to 1963. His student helpers were paid entirely by SCS. He enjoyed working with them and was pleased that they went on to productive careers—two with SCS, two with Farmers Home Administration, and several as teachers.

"By getting practices on the land, the students gain a better understanding of the soil and water conservation problems that face the country," Wickline said. He believes the lessons learned are remembered regardless of subsequent careers.



As for work-study, he said, "These young people are willing workers, and they're capable and eager to learn. They definitely help keep a work unit in top production."

Dr. David Smith, head of the Forest Technology Division of Glenville State College, claims that the variety of work offered by SCS appeals to his students. "The more opportunities there are to do different things, the better they like it."

Kenneth Malone, a professor of agriculture at Potomac State College, says that the experience brought back to school by student workers benefits his entire class. He finds the latest information from SCS field personnel, as relayed by his students, enlightening to him.

From the farm pond to the college classroom—and beyond, in their careers—the college students working in conservation can take with them responsible and knowledgeable attitudes about natural resources and the environment. ♦

(Top) Ernest W. Ashcraft, SCS conservation technician at Charleston, W. Va., shows two student workers how to check the elevations on a farm pond. Holding the rod is Robert Elmore, work-study student; operating the dumpy level is a student trainee soil conservationist, Gary E. Pullin.
(Bottom) Barbara Keaton, a political science major at West Virginia University in Morgantown and an SCS student trainee at Beckley, W. Va., works on plans for revegetating surface-mined land.

Birds and Bees and Flowers and Trees . .

by **Herb Davison and Lynn Betts**
District conservationist, SCS
Davenport, Iowa;
Information specialist, SCS
Lincoln, Nebr.

Davenport loves children—children in wheelchairs, children on crutches, children wearing braces. This Iowa city has designed a nature-study center especially for them.

The 6-acre center, now in its second year of operation, is a project in outdoor education complete with turtles, frogs, birds, and snakes. It even has its own patch of poison ivy.

The center is located behind Fairmount School, which houses both a center for children with learning problems and a preschool for children with cerebral palsy.

Dr. Paul Staskey, research director for the Muscatine and Scott counties school system, which includes Fairmount, estimates that 1,000 physically, mentally, or socially handicapped children from a 5-county area visit the center every year. Boy Scouts and other groups are permitted to use the center on weekends and at other times when handicapped children are not using it. Dr. Staskey says that he wants teachers, students, and other visitors to the center to return home with ideas on how they can develop similar areas.

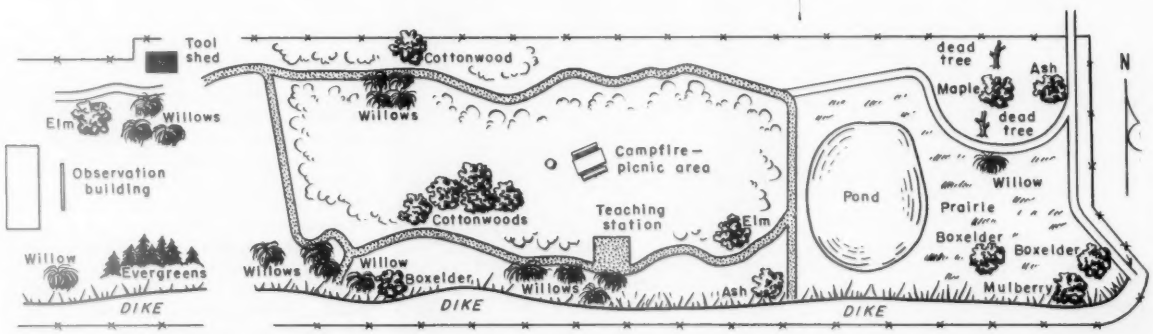
Plans for the center were started in 1969 when $87,000 in federal funds was offered through an Elementary and Secondary Education Act (ESEA) Title III grant. The money is to be used over a 3-year period for educational materials and a nature observation building.

Local people took it from there. Community Health Services, Inc., donated the land. United Community Services pledged $100 annually for maintenance. The city of Davenport allowed the use of a 125-foot strip of city property. The United Cerebral Palsy Association of Scott County pledged more than $1,300.

Volunteers from local organizations did most of the work. Davenport Jaycees blazed a trail for the cement path. They were followed by 14 Marine reservists and 7 cement finishers from Local Union 544. A local Navy Seabees unit offered more young muscles.

Builder's Cement Company of Davenport opened its plant on several Sundays and provided a truck and driver to deliver cement. Boy Scouts, members of the Wheel and Canvas Club, and local members of the National Campers and Hikers Association planted trees and shrubs donated by the Scott County Conservation Board. Girl Scouts served lunch to volunteer workers.

(Below) Diagram of Davenport's nature center for handicapped children. The 6-acre center is on the southwest edge of the city. (Center) Some of these children probably had never seen a bird's nest. The center serves children from a 5-county area. (Right, top) Several platforms were built off the cement path so that the children can stop to rest or bird-watch. (Bottom) A conservation plan for the nature center included this 3-foot deep pond, which was designed by SCS.



·and Kids

Many other organizations and businesses offered their services, including the Scott County Soil Conservation District and the Soil Conservation Service. SCS helped school officials with a conservation plan for the nature center and the design for a 3-foot deep pond.

The center has a section of prairie grasses, several small spaces for gardens, a small campfire-picnic area, and restroom facilities.

Volunteers didn't do all the work in preparing the center, according to Miss Clara Emlen, who was hired last fall as outdoor education consultant for Fairmount and other schools in all or part of five counties around Davenport. "Each child attending Fairmount School planted his own tree, put his name on it, and is taking care of it," Miss Emlen says.

Explaining how the use of the outdoor center can be incorporated into all areas of learning, she says, "The children can use trees for exercises in math, or collect samples of tiny organisms from the pond for study under a microscope."

Fairmount School children call Miss Emlen the "nature lady." She says, "The children are learning conservation as a way of life. They're diligently following the rule that nothing is yours to keep—it's yours to look at and put back for someone else." ♦

The nature center gives the children an opportunity to study ecosystems that ordinarily they would only read about. About 1,000 physically, socially, or mentally handicapped children are expected to use the center every year.

Photo essay:

Youth wants to show

Politicians, businessmen, homeowners, landowners, and ecologists view conservation as a serious business. They recognize conservation as necessary for future survival and evaluate it in terms of dollars and cents.

But thousands of young Americans across the nation have made conservation a personal crusade, solely from an esthetic and philosophical viewpoint. Some even take it as a moral obligation. They feel that man, who has control over his environment, has the responsibility to preserve and protect it.

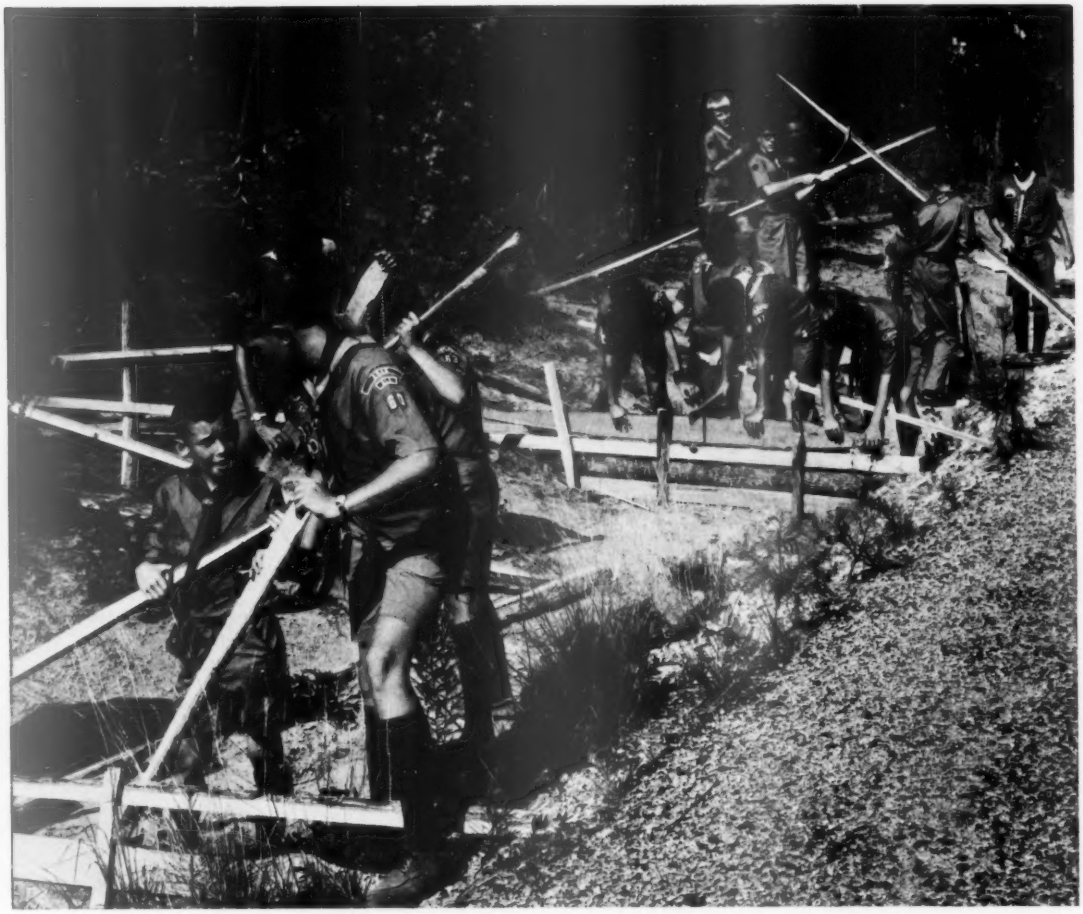
Youths of all ages and from all walks of life enthusiastically participate in conservation activities. Their dynamism and vitality give spark to conservation efforts.

In every state there are youth groups who independently involve themselves in the conservation movement. From Puerto Rico to Hawaii, from elementary to college

In Lake County, California: These boys rescued fish from pools that were drying up and placed them in the Highland Springs Dam.

In Cannon County, Tennessee (above): Seventh-grade students gather roadside trash and keep their school grounds litter-free.
In Pilger, Nebraska (top, right): A teenager gets on-the-job training while working on a flood-control project.
In Tyngsboro, Massachusetts (right): High school students study soils as part of their conservation education.

In Cheney, Washington (top, left): Pruning trees is a woodland conservation practice these Boy Scouts have learned as part of their conservation training.
In Beltsville, Maryland (above): Working for the summer at the National Plant Materials Center gives teenage boys an opportunity to learn how plants fit into a conservation program.
In Martinsburg, West Virginia (left): These Girl Scouts took on an erosion-control project—preparing a roadbank for seeding.



age, these dedicated young environmentalists can be found planting trees, seeding grass, stabilizing streambanks, stocking fish ponds, improving nature trails, and picking up litter. They carry out the conservation activities they feel are important and necessary in their area.

Their zest and spirit have made conservation in America something more than a business.—CRYSTAL WILLIAMS, *SCS Phoenix, Ariz.* ♦

In DeKalb County, Alabama (above): These Boy Scouts are building a series of dams on a roadside drainage ditch to form sediment basins. The dams will help prevent gully erosion; the roadside will be planted later to fescue.
In Sumaico, Wisconsin (left): This high-school group is learning streambank-improvement techniques.

Two hats—and both are white

by Robert H. Mills
District conservationist, SCS
Mansfield, Ohio

District conservationists in Richland County, Ohio, often wear two hats. In addition to helping solve land- and water-use problems, they assist teachers of conservation education at the Mohican Outdoor School.

The Mohican School, held at the Wooster Presbyterian Outdoor Center, consists of 270 acres of rolling forest land in Worthington township.

About 2,400 students in the fifth, sixth, and seventh grades from 15 school districts in the Mansfield area attend Mohican every year. Each school district gets a week-long session at the outdoor school.

Ronald Reed, director of Mohican, says that conservation is probably the most important subject taught there. "We believe that conservation education is not merely a study of soil and water resources," says Reed. "It has to encompass all levels of education and reach students across the whole spectrum of human experience."

These students at the Mohican Outdoor School are completing a wood-chip step walkway and preparing the adjacent slope for seeding. Both measures will help to control erosion.

Reed went to the Richland Soil and Water Conservation District for help in curriculum planning, in preparing teacher workshops, and in planning specific conservation projects for students.

Soil Conservation Service people contribute to the workshops by dis-

cussing conservation projects or concepts that may be useful to the teacher.

District conservationists also help plan nature trails and special conservation activities, and they point out on-the-land conservation practices that can be brought to the attention of the students. These include grass seeding, stream riprapping for erosion control, and tree pruning. ♦

(Above) These students are examining the variety of specimens they collected on a trip to a pond.
(Below) David Tucker, instructor at the Mohican Outdoor School, and two of his students examine tall fescue seed. The young girl holds a grass seeder.

Recon . . .

Land use policy. A bill introduced by Representative Wayne N. Aspinall of Colorado is intended to establish a national land use policy. The bill (H.R. 4332) would authorize the Secretary of the Interior to make grants to assist the states in preparing and implementing land use programs for the protection of areas of critical environmental concern and of more than local significance.

Another bill (H.R. 7211) introduced by Rep. Aspinall and four colleagues would provide that public lands be made available for residential, commercial, or industrial use, including the development of self-sufficient cities and towns.

This bill advances the "dominant use" principle that was put forth in the Public Land Law Review Commission report, providing that where an area is chiefly valuable for one particular use, that use shall be the dominant use, with as many compatible uses being carried on as possible under the multiple-use principle.

Seven Georgia towns have been notified by state health department officials that their disposal-site operations violate state regulations for solid waste collection and disposal. The towns can choose either to develop a sanitary landfill or bring their disposal-site operations into compliance. Officials say that similar actions will be taken throughout the state as such violations are detected.

A Department of Ecology has been formally established in the state of Washington by act of the state legislature. In creating this new department the legislature specified that: "It is the purpose . . . to establish a single state agency with the authority to manage and develop our air and water resources . . . and to carry out a coordinated program of pollution control involving these and related land resources. To this end a department of ecology is created . . . to undertake, in an integrated manner, the various water regulation, management, planning, and development programs; the air regulation and management program; the solid waste regulation and management program; and such other environmental . . . programs as may be authorized by the legislature."

For the third year in a row, **Kalamazoo County's Conservorama** has seen a doubling of attendance by Michigan schoolchildren. Twenty-five hundred children took part on May 4 and 5 in a program at Michigan State University's Kellogg Farm, just outside Kalamazoo. The program, developed and led by the Kalamazoo Soil Conservation District, highlighted a strong year of conservation education work by the district. The event in itself symbolized the healthy marshaling of an area's natural and social resources—a basic in the conservation approach—with inputs from children, parents, and teachers, as well as from government specialists, university scientists, and Western Michigan College students who served as aides. The children didn't just tour and listen. Prepared by classroom study beforehand, they discussed conservation topics with the technical experts who manned the 12 stations of the forest, farm, and biological sections that made up the day-long conservation survey.

Crystal Williams, 21, discusses photograph layout with Bob Branstead, Information Division visual specialist, during a week of training in the Washington office this summer. Crystal, who starts her senior year in the University of Arizona school of journalism in September, is spending her third summer in the Arizona state office, helping with information work. She is a recent recipient of a grant for black journalism students awarded by the American Newspaper Publishers Association.

Review

Films

Brush Creek Bounces Back
Produced by Stuart Finley
Directed by Theodore Jones
Running time: 22 minutes
Stuart Finley Inc., Falls Church, Va.

This film presents an intrinscially interesting story, and it can bring about a better understanding of the small watershed projects that are developing under Public Law 566. Government-sponsored and privately produced in 1970, it is probably the only film presently available that covers this conservation-development approach to area planning.

About a thousand small watershed projects are now well underway. Nearly 300 others have been completed. The likelihood is strong that the program will continue to gain momentum with some 8,000 comparable watersheds throughout the country standing in need of treatment measures.

As the film shows, the Brush Creek Small Watershed Project of Mercer County, W.Va., typifies the effective application of the watershed concept to local conditions and priorities. Designed to end a severe flood problem, the Brush Creek Project has by now successfully laid the groundwork for meeting the basic economic needs of both the townspeople and farmers in the 23,000-acre watershed that includes a rapidly urbanizing center at Princeton. How it has done so is the core of this handsome documentary color film.

The film offers visual evidence of the floods that washed through Princeton as often as 4 times a year. This distressed background sharpens the impact of the movie's portrait of the new system of 13 lakes that is the heart of the project. Then there are the benefits beyond the halting of floods, as described in their own words by private citizens who cooperated in the work of the project: surplus water supplies replacing constant shortages; unusable land becoming buildable; an end to sewage in the creek with the extension of municipal services; new industry and a new school on the new land; and a lakeside park.

This film can serve as the basis for discussion and further investigation. Suitable for all ages, it is on target for groups concerned about ecological relationships and community development and for social-studies groups and classes. — HOWARD M. GOLDFINGER, *Information Division, SCS, Washington, D.C.*

Books

Agricultural Practices and Water Quality. EDITED BY TED L. WILLRICH AND GEORGE E. SMITH. *1971. Iowa State University Press. 415 pp. $7.95.*

Sediment, plant nutrients, pesticides, and animal wastes as water pollutants are viewed in this collection of papers from the conference "The Role of Agriculture in Clean Water." The 48 authors are researchers in engineering, agriculture, biology, social sciences, geology, hydrology, and other fields, including government. The editors point out that the information in this book "is probably the most factual material in one volume on the chemical and biological reactions in soils and on crop and livestock production as they may be potential contributors to the degradation of water quality."

The authors have done some excellent reporting. And they all seem to echo the same concluding thought: Agricultural products are a necessary and vital part of the nation's economy, but agricultural activities are a source of pollution. The public is demanding that past practices that have violated the environment be stopped. Therefore, it is in the best interests of the agricultural industry to help develop its own cures.— P.A.C.

New publications

A Tropical Rain Forest, a Study of Irradiation and Ecology at El Verde, Puerto Rico. BY HOWARD T. ODUM. *1970. U.S. Atomic Energy Commission, Division of Technical Information (available as TID-24270 (PRNC-138), Clearinghouse for Federal Scientific and Tech. Inf., National Bur. Standards, U.S. Dept. of Com., Springfield, Va. 22151). 9 sections, illus. $10.* Reports studies of the "Luquillo Experimental Forest," a large section of montane rain forest in the eastern part of Puerto Rico set aside 50 years ago as a national forest. This volume presents first the scientific results of the Atomic Energy Commission Rain Forest Project 1963-67 concerned with the effects of gamma irradiation on the tropical forest at El Verde. The aim of the project was to learn how a rain forest works as a system and under stress, including populations, mineral cycles, metabolism, and operations of the complex living structure, by concentrating new and old techniques and many investigators on one small area. The second purpose of the book is to provide the details for a new wave of effort at El Verde aimed at understanding complex ecosystems and their meaning for man. The forest is regarded as a metabolic community with complex energy flows and intimate interaction between the various populations. Changes in such system interactions may prove to be the most sensitive indicators of the ultimate effect of ionizing radiation on the history of a forest.

A Guide to Medicinal Plants of Appalachia. By Arnold Krochmal, Russell S. Walters, and Richard M. Doughty. *1971. USDA Agr. Hbk. 400. 291 pp., illus. $1.75.* Guide describes 126 medicinal plants of the Appalachian Region and includes a glossary, a reference list of publications, and a listing of additional source material.

Peaceful Uses of Nuclear Energy. By Glenn T. Seaborg. *1970. U.S. Atomic Energy Commission, Division of Technical Information. 156 pp., illus.* Presents a collection of speeches. The speech on "The Atom's Expanding Role in Agriculture" says that by the year 2000 the farmer will be expected to furnish food for about 7 billion people. New crops through mutations; use of radioisotopes for new crop plants; pest control; eliminating parasitic diseases in livestock; food preservation; and other applications of radiation will help farmers increase the food supply.

Sanitary Landfill Facts. By Thomas J. Sorc and H. Lanier Hickman, Jr. *1970. U.S. Department of Health, Education, and Welfare, Public Health Service Publ. 1792. 30 pp., illus. $1.* General information on one basic, acceptable, and effective method of solid waste disposal—the sanitary landfill. The publication examines the planning, design, operation, and public health aspects of these landfills.

Background on U.S. Agriculture. *1971. USDA Leaflet 491. 8 pp., illus. folder. $0.10.* Reports that farming is the nation's biggest industry, employing 4.6 million workers; that the farmer spends about $40 billion a year for goods and services to produce crops and livestock and $16 billion for food, clothing, drugs, furniture, appliances, and other products and services; and that three out of every 10 jobs in private employment are related to agriculture.

Russian-Olive for Wildlife and Other Conservation Uses. By A. E. Borell. *Rev. 1971. USDA Leaflet 517, 8 pp., illus. $0.10.* Supersedes Leaflet 292, *Russian-Olive—for Wildlife and Good Land Use.* For wildlife food and cover in the Western and Plains States, Russian-olive is best. It is useful for farmstead and field windbreaks, snow traps, gully and streambank plantings, hedgerows, and living fences.

Wild Ducks on Farmland in the South. By William W. Neely and Verne E. Davison. *Rev. 1971. USDA Farmers' Bull. 2218. 14 pp., illus. $0.10.* Supersedes Farmers' Bulletin 2144, *Managing Farm Fields, Wetlands, and Waters for Wild Ducks in the South.* In wild ducks' wintering grounds, food is the most important requirement. Flooded fields, ricefields, oak woodlands, fresh-water ponds, and brackish-water areas offer habitats for ducks. Some of the best plants for duck fields are browntop millet, corn, Japanese millet, and smartweed; watershield, naiad and southern naiad, and potamogeton for duck ponds; and widgeongrass or saltmarsh bulrush for brackish-water areas. Evaluation of some duck-food plants is presented in list form.

Mulches for Your Garden. By the Soil Conservation Service. *1971. USDA Home and Garden Bull. 185. 8 pp., illus. folder. $0.10.* Recommends using a mulch in a flower or vegetable garden to reduce soil blowing and washing, suppress weeds, keep the soil moist and cool, and add organic matter to the soil.

Economic Impact of the Crow Wing Canoe Trail, Wadena County, Minn. By Uel Blank and Sterling H. Stipe, Jr. *1971. USDA Economic Research Service ERS-467. 29 pp., illus.* A study conducted to determine the economic impact of developing the Shell and Crow Wing Rivers in Wadena County, Minn., for canoeing and related recreational activities. Discusses the results of cooperative efforts of private groups, individuals, and government agencies, including the Soil Conservation Service. The current economic impact of the trail, while not large, provides a nucleus for a developing recreation complex in Wadena County, complementing other recreational enterprises.

Lawn Weed Control With Herbicides. *Rev. 1971. USDA Home and Garden Bull. 123. 24 pp., illus.* Supersedes Home and Garden Bulletin 79, *Controlling Lawn Weeds With Herbicides.* Gives recommended treatment for controlling weed grasses, such as crabgrass and nimblewill; also gives controls for broadleaf weeds, such as chickweed, henbit, knotweed, ground ivy, and oxalis.

Meetings

August

4-6 Community Development Society, Stillwater, Okla.

8-11 National Farm and Power Equipment Dealers Association, Toronto, Canada

15-18 Soil Conservation Society of America, Columbus, Ohio
Theme: The Shape of Things to Come
Keynote speaker: Richard Vaughn, acting commissioner of the Solid Wastes Office, Environmental Protection Agency

15-19 Conservation Education Association, Ann Arbor, Mich.
Theme: Environmental Crisis: Root Causes and Opportunities for Solution

15-20 American Society of Agronomy and Soil Science Society of America, New York, N.Y.

24-26 Illinois Soil and Water Conservation Show, sponsored by the Land Improvement Contractors of America, Monticello, Ill.
Theme: Conservation, Hope for a Decaying Environment

29-Sept. 3 American Institute of Biological Sciences, Inc., Ft. Collins, Colo.

29-Sept. 3 Ecological Society of America, Ft. Collins, Colo.

September

13-15 International Association of Game, Fish and Conservation Commissioners, Salt Lake City, Utah

15-18 American Fisheries Society, Salt Lake City, Utah

19-23 National Conference on State Parks, Des Moines, Iowa

21-24 Association of Conservation Engineers, Jackson, Wyo.

26-30 Society of American Foresters, Cleveland, Ohio
Theme: Forestry in an Urbanized Society

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From the Administrator:

Working with young America

America's young people are demanding, and getting, a greater voice in public affairs. Some have found that voice by standing in the street and shouting into a television camera. Now they have obtained a more articulate voice, a constitutional amendment that lowers to 18 years the privilege of voting in our national elections. People in public life are going to have to listen more carefully than ever to what youth has to say.

In years past, we have talked a lot in SCS circles about what we can tell youth, what we can show them, and what we can teach them. Increasingly we face up to the fact that communication flows two ways and that young people have something important to say to the soil and water conservation movement.

It goes without saying that SCS and the districts have had nearly four decades of experience in conservation. But youth has energy, vitality. Service people have professional training behind them. But youth has new ideas, fresh viewpoints. SCS and the districts have organization, a structure for getting conservation work done. But youth, given enough time and sense of direction, can create new social and political structures to serve their own ends.

I think we have got to make an effort to find better ways to communicate with young people. In so doing, we would do well to remember that both the middle-aged and the young have their weaknesses. Some representatives of my generation are too prone to defend "the way we've always done things." Some youngsters, on the other hand, are too quick to reject all the experience of older hands, an attitude that can only result in their making the same mistakes that were made before.

The other day, I asked a bright young lady of 21, with a demonstrated interest in conservation, what it was she wanted from my generation. She replied that she wanted guidance on how to go about things, how to get things done. "But nobody needs to give us the go-ahead," she added. "What we want is the road map."

Perhaps the best way we can help each other in the interests of conservation is to work together on more projects. You can be pretty sure that if young people fail to find a useful role within the soil and water conservation movement, they are going to find one outside it.

Every district probably has a list of unanswered questions that can be partially answered through student research projects or through cooperative work with young people's organizations. Questions like what do local people need—and what are they getting—in the way of nearby recreation? What is the impact of soil conservation practices on fish and wildlife? Are there any rare or endangered species of bird, plant, or animal in the area? What is it young people want to learn in school about conservation?

To get answers to these questions, district supervisors and SCS technical people can provide the guidance, the "road map" the young lady requested. And young people can provide the enthusiasm, the capacity for sustained work, and the fresh outlook that can give new life to our program.

By working together on these and similar projects of mutual interest, perhaps we can get to understand one another a little better, while finding at the same time some answers to important questions.

Kenneth E. Grant